

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : MATSUSHITA ELECTRIC IND CO  
LTD

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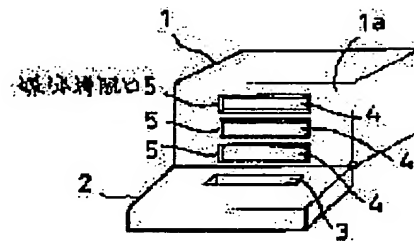
(72)Inventor : SASAKI TATSUSHI

## (54) RECORDING AND REPRODUCING DEVICE

## (57)Abstract:

PURPOSE: To easily and rapidly take out an accumulated recording medium and supply the recording medium to the device.

CONSTITUTION: In the recording and reproducing device capable of accumulating plural recording media inside, automatically changing the media and reproducing them, plural medium inserting/ejecting holes 5 are provided in the operating surface 1a of the device main body 1, and an operating panel 2 capable of opening and closing is provided, so as to block up these medium inserting/ ejecting holes 5. This operating panel 2 is provided with one medium inserting/ ejecting hole 3, through which a recording medium 4 can be inserted or ejected even when the operating panel 2 is closed.



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CLAIMS

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[Claim(s)]

[Claim 1] The record regenerative apparatus which accumulates two or more record media in the interior of equipment, and is characterized by to enable insertion and detachment of the record medium in the condition prepared possible [ closing motion of the control panel which can close medium insertion-and-detachment opening ], prepared medium insertion-and-detachment opening in the control panel further, and closed the control panel in the record regenerative apparatus which the accumulated record medium can exchange automatically while preparing two or more medium insertion-and-detachment openings in the actuation side of the body of equipment.

[Claim 2] The record regenerative apparatus according to claim 1 characterized by equipping said control panel with a record-medium detection means and a panel fixed means to fix so that a control panel may not open and close according to the output of this record-medium detection means.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the record regenerative apparatus applied to an optical record regenerative apparatus etc., and relates to attachment and detachment of record media, such as an optical disk especially accumulated into equipment, and a magneto-optic disk.

[0002]

[Description of the Prior Art] If it is the perspective view of the 1st conventional example of the optical record regenerative apparatus which the record medium which accumulated two or more record media in the interior of equipment, and was accumulated can exchange automatically, the insertion-and-detachment opening 12 is formed in actuation side 11a of the body 11 of equipment of a record regenerative apparatus and drawing 6 inserts a record medium 13 from this insertion-and-detachment opening 12, a record medium 13 will be incorporated in the body 11 of equipment, and the record or the playback to a record medium 13 is performed. In order to accumulate two or more record media 13 in the interior of the body 11 of equipment, a record medium 13 is inserted one by one from the insertion-and-detachment opening 12. If it does in this way, two or more record media 13 are accumulated in the interior of the body 11 of equipment, automatic exchange is performed by the record-medium exchange style (not shown) prepared in the interior of the body 11 of equipment, and record playback can be performed by it.

[0003] It is the perspective view of the 2nd conventional example of the optical record regenerative apparatus which the record medium which drawing 7 and drawing 8 accumulated two or more record media in the interior of equipment, and accumulated can exchange automatically, as shown in drawing 7, a control panel 22 is formed in actuation side 21a of the body 21 of equipment possible [ closing motion ], and as shown in drawing 8, two or more insertion-and-detachment openings 23 are formed in actuation side 21a of the flesh side of a control panel 22. When open a control panel 22 and two or more insertion-and-detachment openings 23 are exposed, when inserting or taking out a record medium 24, and carrying out and performing record playback, a control panel 22 is closed and is operated. If it does in this way, two or more record media 24 can be accumulated in the interior of the body 21 of equipment, can exchange the internal record medium 24 automatically, and record playback can be performed.

[0004]

[Problem(s) to be Solved by the Invention] However, in the record regenerative apparatus of the 1st conventional example, in order to exchange all the record media 13 stored in the body of equipment 11 interior and to take out the record medium 13 accumulated first, the actuation which takes out one record medium 13 at a time must be repeated, and it must insert one record medium 13 at a time from the insertion-and-detachment opening 12 after that. The operate time was needed very long and the real use top had the problem that exchange of many record media 13 was impossible as the number of the record media 13 stored in the body of equipment 11 interior increased since the operate time was required respectively in order to have picked out the record medium 13 from the insertion-and-detachment opening 12 and to have inserted.

[0005] Moreover, in the record regenerative apparatus of the 2nd conventional example, although there was little time amount which the swap time of a record medium 24 takes since there were two or more insertion-and-detachment openings 23 when opening the control panel 22, actuation of opening a control panel 22 was required to insert [ record medium / 24 ]. Therefore, since it was necessary to carry out two actuation with closing motion of a control panel 22, and exchange of a record medium 24 even when exchanging the record medium 24 of one sheet even if, it had the problem that actuation was complicated.

[0006] If a control panel 22 is lost and two or more insertion-and-detachment openings 23 are always exposed, said problem is solvable, but since actuation area other than insertion-and-detachment opening 23 decreases, it is difficult to arrange the switch which operates equipment, and \*\* on an actuation side, and an implementation top cannot lose a control panel 22.

[0007] This invention aims at offering the record regenerative apparatus which can shorten the time amount which exchange of a record medium takes, and can perform the actuation simply.

[0008]

[Means for Solving the Problem] It prepares possible [ closing motion of a control panel ] so that medium insertion-and-detachment opening may be closed, and this invention prepares medium insertion-and-detachment opening in a control panel further, and enables insertion and detachment of the record medium in the condition closed the control panel while it prepares two or more medium insertion-and-detachment openings in the actuation side of the body of equipment in the record regenerative apparatus which the record medium which accumulated two or more record media in the interior of equipment, and was accumulated can exchange automatically in order to attain said purpose.

[0009] Moreover, a record-medium detection means is formed in said control panel, and it has a panel fixed means to fix so that a control panel cannot be opened and closed according to the output of this record-medium detection means.

[0010]

[Function] With the record regenerative apparatus by this invention of said configuration, also when receipts and payments of the record medium from medium insertion-and-detachment opening of a control panel are possible where a control panel is closed, and taking two or more record media in and out and taking the record medium of one sheet in and out, it is a short time and can carry out by easy actuation.

[0011] Moreover, if it is detected that a record medium is in a control panel, it can prevent opening and closing a control panel, while the record medium is touching the control panel, and inserting a record medium by fixing so that a control panel may not be opened and closed.

[0012]

[Example] Hereafter, the example of this invention is explained based on a drawing.

[0013] Drawing 1 - drawing 3 accumulate two or more record media twisted to this invention in the interior of equipment, it is the perspective view showing one example of the record regenerative apparatus which the accumulated record medium can exchange automatically, and form a control panel 2 in actuation side 1a of the body 1 of equipment of a record regenerative apparatus possible [ closing motion ], and form one medium insertion-and-detachment opening 3 in a control panel 2. Two or more medium insertion-and-detachment openings 5 are formed in actuation side 1a of the body 1 of equipment which hid in the control panel 2, and the lowest medium insertion-and-detachment opening 5 and the medium insertion-and-detachment opening 3 of said control panel 2 are made in agreement in this example. If a control panel 2 is opened as shown in drawing 3 , all the medium insertion-and-detachment openings 5 prepared in actuation side 1a of the body 1 of equipment will be exposed. The directions which perform playback to equipment, exchange of a disk, etc. are performed by operating the switch and \*\* which were prepared in the control panel 2 in the condition of having closed the control panel 2.

[0014] It can be easily operated for taking a record medium 4 in and out from the medium insertion-and-detachment opening 3 prepared in the control panel 2 as shown in drawing 2 , moving the applicable record medium 4 and closing a control panel 2 by the record-medium exchange style (not shown) prepared in the interior of the body 1 of equipment, in order to have exchanged the record medium 4 of one sheet. Moreover, when exchanging two or more record

media, as shown in drawing 3 , it can carry out by opening a control panel 2 and being able to expose two or more medium insertion-and-detachment openings 5, and two or more record media 4 can be taken in and out of coincidence in a short time.

[0015] Drawing 4 and drawing 5 are the explanatory views of the internal structure of this example, two or more record media are accumulated in the background of a control panel 2, and the automatic switchboard style for exchanging a record medium automatically is prepared in the back. the electromagnetism which is equipped with a contact switch 6 as a record-medium detection means detect whether a record medium 4 exists in a control panel 2 to a control panel 2, considers as a means fix and release a control panel 2 according to the condition of a contact switch 6, forms a lock-pin 7 in a control panel 2, forms rotatable hook 8 focusing on the supporting point 9 in the body 1 side of equipment, and hangs or removes hook 8 to a lock-pin 7 -- the hook driving means 10 which consists of solenoid equipment etc. has prepared.

[0016] When it detects that drawing 4 shows the situation that a record medium 4 exists in a control panel 2, and the contact switch 6 has a record medium 4 in a control panel 2, the hook driving means 10 operates so that hook 8 may engage with the lock-pin 7 of a control panel 2, and it fixes a control panel 2 and it is made not to open it.

[0017] Drawing 5 shows the situation that the record medium 4 does not exist in a control panel 2, and if it detects that there is no record medium 4 in a control panel 2, the contact switch 6 will operate so that the hook driving means 10 which received the detecting signal may remove hook 8 from the lock-pin 7 of a control panel 2, and will enable it to open and close a control panel 2.

[0018] As mentioned above, with restricting closing motion of a control panel 2 by the detection result of the contact switch 6, when a record medium 4 exists on a control panel 2, it prevents opening a control panel 2 and has the effectiveness that it can prevent putting a record medium between insertion-and-detachment opening.

[0019]

[Effect of the Invention] Since two or more medium insertion-and-detachment openings can be exposed by being able to perform record-medium exchange of one sheet by very easy actuation, and moreover opening a control panel, since a record medium can be taken in and out close [ regenerative apparatus / according to the configuration according to claim 1, / the record regenerative apparatus of this invention equips a control panel with medium insertion-and-detachment opening, and / the control panel ] as explained above, two or more record-medium exchange can be performed in a short time.

[0020] When a record medium is [ according to the configuration according to claim 2 ] on a control panel in addition to said effectiveness, a control panel is fixed, can prevent putting a record medium between insertion-and-detachment opening, when there is no record medium on a control panel, open and close a control panel, and exchange of a record medium is attained, and it is [ malfunction is prevented and ] possible. [ of receipts and payments of the stable record medium ]

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the perspective view of one example of the record regenerative apparatus of this invention.

[Drawing 2] It is the perspective view showing the condition at the time of use of this example.

[Drawing 3] It is the perspective view showing the condition at the time of use of this example.

[Drawing 4] It is the explanatory view of the internal structure in this example.

[Drawing 5] It is an explanatory view at the time of hook discharge of the internal structure of drawing 4 .

[Drawing 6] It is the perspective view showing the 1st example of the conventional record regenerative apparatus.

[Drawing 7] It is the perspective view showing the 2nd example of the conventional record regenerative apparatus.

[Drawing 8] It is the perspective view showing the condition at the time of use of the location of drawing 7 .

### [Description of Notations]

1 -- Body of equipment 2 -- Control panel 3 Five -- Medium insertion-and-detachment opening 4 [ 7 -- Lock-pin 8 -- Hook 9 -- Supporting point 10 -- Hook driving means. ] -- A record medium, 6 -- Contact switch (record-medium detection means)

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(71)出願人 000005821

松下電器産業株式会社

大阪府門真市大字門真1006番地

(72)発明者 佐々木 達志

神奈川県横浜市港北区綱島東四丁目3番1

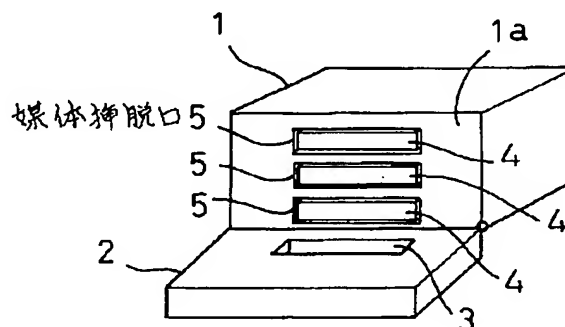
号 松下通信工業株式会社内

(54)【発明の名称】 記録再生装置

(57)【要約】

【目的】 蓄積している記録媒体の取り出し、および装置への記録媒体供給を容易かつ迅速にできるようにする。

【構成】 複数の記録媒体を内部に蓄積し、自動交換して再生可能な記録再生装置において、装置本体1の操作面1aに複数の媒体挿脱口5を設け、この媒体挿脱口5を塞ぐように、開閉可能な操作パネル2を設ける。この操作パネル2に1つの媒体挿脱口3を設け、操作パネル2を閉じていても記録媒体4の挿脱を可能にする。





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## 【特許請求の範囲】

【請求項1】 複数の記録媒体を装置内部に蓄積し、蓄積した記録媒体の自動交換が可能な記録再生装置において、装置本体の操作面に、複数の媒体挿脱口を設けるとともに、媒体挿脱口を塞ぐことができる操作パネルを開閉可能に設け、さらに操作パネルに媒体挿脱口を設け、操作パネルを閉じた状態での記録媒体の挿脱を可能にしたことを特徴とする記録再生装置。

【請求項2】 前記操作パネルに記録媒体検出手段と、この記録媒体検出手段の出力に応じて操作パネルが開閉しないように固定するパネル固定手段とを備えたことを特徴とする請求項1記載の記録再生装置。

## 【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、光学的記録再生装置等に適用される記録再生装置に係り、特に、装置内に蓄積される光ディスク、光磁気ディスク等の記録媒体の着脱に関するものである。

【0002】

【従来の技術】図6は、複数の記録媒体を装置内部に蓄積し、蓄積した記録媒体の自動交換が可能な光学的記録再生装置の第1の従来例の斜視図であり、記録再生装置の装置本体11の操作面11aに挿脱口12が形成され、この挿脱口12から記録媒体13を挿入すると記録媒体13が装置本体11内に取り込まれ、記録媒体13に対する記録または再生が行われる。複数の記録媒体13を装置本体11の内部に蓄積するためには、挿脱口12より順次、記録媒体13を挿入する。このようにすれば、複数の記録媒体13が装置本体11の内部に蓄積されて、装置本体11の内部に設けられた記録媒体交換機構(図示せず)によって、自動交換が行われ、記録再生を行うことができる。

【0003】図7、図8は、複数の記録媒体を装置内部に蓄積し、蓄積した記録媒体の自動交換が可能な光学的記録再生装置の第2の従来例の斜視図であり、図7に示すように装置本体21の操作面21aに開閉可能に操作パネル22が設けられ、図8に示すように操作パネル22の裏の操作面21aには複数の挿脱口23が形成されている。記録媒体24を挿入または取り出すときには、操作パネル22を開けて複数の挿脱口23を露出させて行い、記録再生を行うときには、操作パネル22を閉じて動作させる。このようにすれば、複数の記録媒体24が装置本体21の内部に蓄積され、内部の記録媒体24を自動交換して記録再生を行うことができる。

【0004】

【発明が解決しようとする課題】しかしながら、第1の従来例の記録再生装置において、装置本体11内部に蓄えた全ての記録媒体13を交換するには、まず蓄積した記録媒体13を取り出すために、1枚ずつ記録媒体13を取り出す操作を繰り返し、その後、挿脱口12より1枚ずつ記録媒体13を挿入しなくてはならない。挿脱口12より記録媒

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体13を取り出し、また挿入するには、それぞれ操作時間が必要であるため、装置本体11内部に蓄えられる記録媒体13の数が増えるに従って、操作時間を非常に長く必要とし、実使用上は多くの記録媒体13の交換が不可能であるという問題を有していた。

【0005】また第2の従来例の記録再生装置においては、操作パネル22を開けば、複数の挿脱口23があるため、記録媒体24の交換時間に要する時間は少ないが、記録媒体24の挿脱を行うには操作パネル22を開く操作が必要であった。そのため、たとえ1枚の記録媒体24を交換する場合でも、操作パネル22の開閉と記録媒体24の交換との2つの操作をする必要があるため、操作が複雑であるという問題を有していた。

【0006】操作パネル22をなくして、常に複数の挿脱口23を露出させれば前記問題を解決できるが、挿脱口23以外の操作面積が少なくなるため、装置の操作を行うスイッチや釦を操作面上に配置することが困難で、実現上は操作パネル22をなくすることはできない。

【0007】本発明は、記録媒体の交換に要する時間を短縮し、かつその操作を簡易に行うことができる記録再生装置を提供することを目的とする。

【0008】

【課題を解決するための手段】本発明は、前記目的を達成するため、複数の記録媒体を装置内部に蓄積し、蓄積した記録媒体の自動交換が可能な記録再生装置において、装置本体の操作面に、複数の媒体挿脱口を設けるとともに、媒体挿脱口を塞ぐように操作パネルを開閉可能に設け、さらに操作パネルに媒体挿脱口を設け、操作パネルを閉じた状態での記録媒体の挿脱を可能にしたものである。

【0009】また、前記操作パネルに記録媒体検出手段を設け、この記録媒体検出手段の出力に応じて操作パネルが開閉できないように固定するパネル固定手段とを備えたものである。

【0010】

【作用】前記構成の本発明による記録再生装置では、操作パネルを閉じた状態で操作パネルの媒体挿脱口からの記録媒体の出し入れが可能であって、複数の記録媒体の出し入れをするときにも、1枚の記録媒体の出し入れをするときにも、短時間でかつ簡単な操作で行える。

【0011】また、操作パネルに記録媒体があることが検出されると、操作パネルを開閉しないように固定することで、記録媒体が操作パネルに触れているときに操作パネルの開閉を行い、記録媒体を挟んでしまうことが防げる。

【0012】

【実施例】以下、本発明の実施例を図面に基いて説明する。

【0013】図1～図3は、本発明による複数の記録媒体を装置内部に蓄積し、蓄積した記録媒体の自動交換が

可能な記録再生装置の一実施例を示す斜視図であり、記録再生装置の装置本体1の操作面1aに開閉可能に操作パネル2を設け、操作パネル2には1個の媒体挿脱口3を設ける。操作パネル2に隠れた装置本体1の操作面1aには複数の媒体挿脱口5を設け、本実施例では最下位の媒体挿脱口5と前記操作パネル2の媒体挿脱口3とを一致させている。図3に示すように操作パネル2を開くと、装置本体1の操作面1aに設けた全ての媒体挿脱口5が露出するようになっている。装置に対する再生およびディスクの交換等を行う指示は、操作パネル2を閉じた状態において操作パネル2に設けられたスイッチおよび釦を操作することで行う。

【0014】1枚の記録媒体4を交換するには、装置本体1の内部に設けられた記録媒体交換機構(図示せず)によって該当記録媒体4を移動させ、操作パネル2を閉じたまま、図2に示すように操作パネル2に設けた媒体挿脱口3より記録媒体4を出し入れすることで容易に操作を行える。また、複数の記録媒体を交換するときには、図3に示すように操作パネル2を開けて複数の媒体挿脱口5を露出させて行い、同時に複数の記録媒体4を短時間に出し入れすることができる。

【0015】図4、図5は本実施例の内部構造の説明図であり、操作パネル2の裏側には複数の記録媒体が蓄積され、その奥には記録媒体を自動交換するための自動交換機構が設けられている。操作パネル2に、記録媒体4が操作パネル2に存在するか否かを検出する記録媒体検出手段として接触スイッチ6を備え、接触スイッチ6の状態により操作パネル2を固定および解放する手段として操作パネル2に固定ピン7を設け、装置本体1側に支点9を中心に回動可能なフック8を設け、フック8を固定ピン7に掛けたり外したりする電磁ソレノイド装置等からなるフック駆動手段10を設けてある。

【0016】図4は記録媒体4が操作パネル2に存在する状況を示しており、接触スイッチ6は記録媒体4が操作パネル2にあることを検出すると、フック駆動手段10は、フック8が操作パネル2の固定ピン7に係合するよう動作し、操作パネル2を固定して開かないようにする。

【0017】図5は記録媒体4が操作パネル2に存在していない状況を示しており、接触スイッチ6は記録媒体4が操作パネル2にないことを検出すると、その検出信

\*号を受けたフック駆動手段10がフック8を操作パネル2の固定ピン7から外すように動作し、操作パネル2を開閉できるようにする。

【0018】以上のように、接触スイッチ6の検出結果により操作パネル2の開閉を制限することで、操作パネル2上に記録媒体4が存在するときに操作パネル2を開くことを防止し、記録媒体を挿脱口に挟み込むことを防げるという効果を有する。

【0019】

10 【発明の効果】以上説明したように、本発明の記録再生装置は、請求項1記載の構成によれば、操作パネルに媒体挿脱口を備え、操作パネルを閉じたままでも記録媒体の出し入れが行えるので、1枚の記録媒体交換を非常に容易な操作で行うことができ、しかも操作パネルを開けることで、複数の媒体挿脱口を露出することができるので、複数の記録媒体交換を短時間に行うことができる。

【0020】請求項2記載の構成によれば、前記効果に加えて操作パネル上に記録媒体があるときには、操作パネルを固定し、挿脱口に記録媒体を挟み込むことを防止でき、操作パネル上に記録媒体がないときは操作パネルを開閉し、記録媒体の交換が可能になり、誤動作を防止し、安定した記録媒体の出し入れができる。

【図面の簡単な説明】

【図1】本発明の記録再生装置の一実施例の斜視図である。

【図2】本実施例の使用時の状態を示す斜視図である。

【図3】本実施例の使用時の状態を示す斜視図である。

【図4】本実施例における内部構造の説明図である。

30 【図5】図4の内部構造のフック解除時の説明図である。

【図6】従来の記録再生装置の第1の例を示す斜視図である。

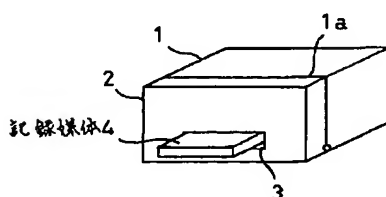
【図7】従来の記録再生装置の第2の例を示す斜視図である。

【図8】図7の位置の使用時の状態を示す斜視図である。

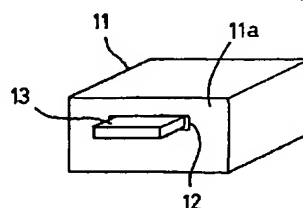
【符号の説明】

1…装置本体、 2…操作パネル、 3、5…媒体挿脱口、 4…記録媒体、 6…接触スイッチ(記録媒体検出手段)、 7…固定ピン、 8…フック、 9…支点、 10…フック駆動手段。

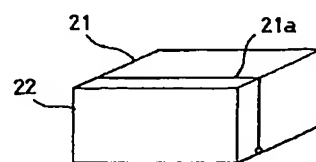
【図2】



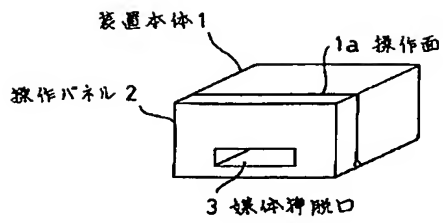
【図6】



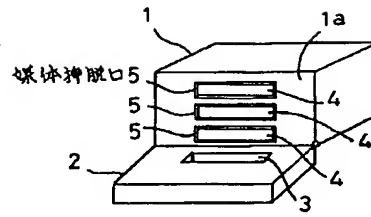
【図7】



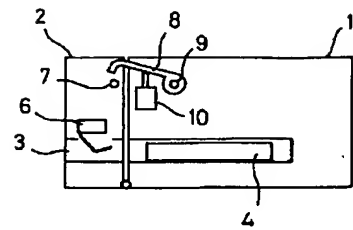
【図1】



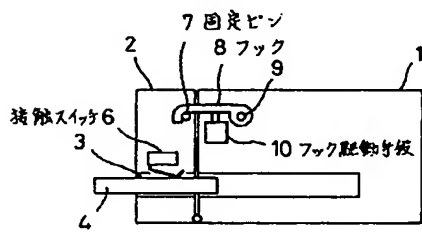
【図3】



【図5】



【図4】



【図8】

